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I, GAYE TURNER, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. PQ 8475 for a patent by WESTFIELD LIMITED filed on 30 June 2000.

WITNESS my hand this  
Twenty-third day of July 2001

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**Westfield Limited**

**PROVISIONAL SPECIFICATION**

*Invention Title:*

*Integration of third party sites into internet mall*

The invention is described in the following statement:

## *Integration of third party sites into internet mall*

### **Introduction**

The present invention relates generally to the field of e-commerce and in particular the invention provides a web site structure and a method of building a web site for an internet shopping mall in which a number of  
5 different and independent retailers are represented on web pages produced on the shopping mall site but under each retailers individual control.

### **Background**

Prior art web sites that linked different retail services were initially simply web pages with links through to independent retailer web sites,  
10 however this mechanism did not allow any aggregation of services at the mall site.

Subsequent improvements to such sites involved passing information between the Mall site and the retailer site to enable checkout functions to appear to be aggregated at the mall site but in fact the transaction details  
15 were sent back to the individual retailers who then performed the financial transactions with an appropriate bureau and arranged delivery. Such sites still did not provide any aggregation of services other than checkout services and provision of a pseudo-shopping cart to enable the purchaser to collect items from one or more retailers before completing the purchases. Further  
20 the building of the retailer site was done by the retailer and no integration of the pages of the Mall and retailer sites was possible.

Some, more recent, sites have been created which collect together retail services that would have previously been provided by different retailers (eg. Books and Hardware) and provided the services in different pseudo-  
25 stores on the "Mall" site but in effect the retail services were all provided by the one provider and the design and construction of the web pages of the individual pseudo-stores were all performed centrally by the mall site operator.

### **Summary of the invention**

30 According to a first aspect the present invention consists in a method of building a web page on a first internet site operated by a first computer system where the page is an amalgamation of elements from at least two sources including a first and second source where the elements from the first source comprise elements common to a plurality of pages on the first internet  
35 site and the second source is a second computer system operating a second

independent internet site, the page being defined by template components which specify format and data items defining detail in respective page elements, the method comprising the steps of:

- 5 a) when the page is requested by a user accessing the first internet site, obtaining a page-template component supplied from a template storage means on the first computer system, the first page-template component defining locations on the page for placement of data items from a first items database associated with the first internet site;
- 10 b) combining the first page-template component with a second page-template component supplied from a template component storage means on the second computer system, the second page-template component defining locations on the page for placement of data items from a second items database associated with the second internet site;
- 15 c) obtaining first data items associated with the first page-template component from the first database and inserting the first data items into the page at the locations defined by the first page-template component;
- 20 d) obtaining second data items associated with the second page-template component from the second database and inserting the second data items into the page at the locations defined by the second page-template component; and
- e) providing the page to the user.

According to a second aspect, the present invention consists in a method of building a web page on an internet site where the page is an  
 25 amalgamation of page defining elements including at least two template elements defining page format of respective page components of the web page and data items defining detail in respective page elements, the method comprising the steps of:

- 30 a) when the page is requested by a user accessing the internet site, obtaining a page-template component supplied from a template storage means, the first page-template component defining locations on the page for placement of data items from a first items database associated with the internet site;
- 35 b) combining the first page-template component with a second page-template component supplied from a template component storage means, the second page-template component defining locations on the page for

placement of data items from a second items database associated with an information provider other than the internet site;

5 c) obtaining first data items associated with the first page-template component from the first database and inserting the first data items into the page at the locations defined by the first page-template component;

d) obtaining second data items associated with the second page-template component from the second database and inserting the second data items into the page at the locations defined by the second page-template component; and

10 e) providing the page to the user.

According to a third aspect, the present invention consists in a telecommunication signal representing an internet web page image generated by a web site and comprising an amalgamation of at least two page components, the amalgamated page image being produced by the web site  
15 from a first page-template component and a second page-template component; the page-template components each defining locations on the page for placement of data items from respective databases associated with each template component.

20 Preferably the components which make up the signal are obtained as follows:

a) the first page-template component is supplied from a template storage means, the first page-template component defining locations on the page for placement of data items from a first items database;

25 b) the second page-template component is supplied from a template component storage means, the second page-template component defining locations on the page for placement of data items from a second items database;

30 c) the first data items associated with the first page-template component are obtained from the first database and one inserted into the page at the locations defined by the first page-template component;

d) the second data items associated with the second page-template component are obtained from the second database and are inserted into the page at the locations defined by the second page-template component.

35 In preferred embodiments of the invention, cache means are provided in the first computer system whereby, for pages that are requested often by users, the second page-template component is temporarily stored in the

cache means, the second page-template component being retrieved from the cache if it is currently held in the cache and otherwise being retrieved from the template storage means in the second computer system. The cache means is preferably a pre-emptive cache whereby the pages are pre-fetched and periodically updated in anticipation of users requesting them, however it is also possible to use a non-preemptive cache in which case the second page-template component is temporarily stored in the cache means when the page is requested for a first time and is flushed from the cache if the page is not requested again within a period of time determined by the first computer system.

The second database is preferably located locally to the first computer system and is a copy of a third database held remotely of the first computer system, the second database being updated intermittently to reflect data changes that have occurred on the third data base.

The second page-template component comprises a page template of the second internet site, and the first page-template component is a component used to add content relating to the shopping mall site, the first page-template component, when combined with the second page-template component forming a border along a side of an information carrying portion of the second page-template component and the second page-template component being resized if necessary to produce a page that fits within a page dimension specification of the first internet site.

The first page-template component defines layout of a first page component, and content relevant to the first page-template component is preferably defined by a first content database, which is separate from the first items database, the content of the first content database comprising at least one display element and the data items of the first items database providing details of the display elements provided from the first content database.

The second page-template component defines a layout of a second page component, and content relevant to the second page component is preferably defined by a second content database separate from the second items database, the content of the second content database comprising at least one display element and the data items of the second database providing details of the display elements provided from the second content database.

Alternatively it is also possible to define a page by having each of the page-template components define layout and content of a respective component of a page, where the content includes at least one display element and the data items of the first and second databases provide details of the display elements for the first and second page-template components respectively.

In yet another possible arrangement, each of the page-template components define only layout of a respective component of a page and the first and second items databases provide content items for each respective page component and data items for each respective content item.

#### **Brief Description of the Drawings**

Embodiments of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 is a high level block diagram of the overall structure of a Internet Shopping Mall according to the present invention;

Figure 2 is a block diagram showing the functional structure of an Internet Shopping Mall according to the present invention;

Figure 3 is a block diagram showing the integration structure of the Mall Site of Figures 1 and 2;

Figure 4 is a block diagram illustrating a shop building function within the Internet Shopping mall of Figures 1, 2 and 3; and

Figure 5 illustrates an example of a retailer webpage.

#### **Detailed Description of the Preferred Embodiment**

In a preferred embodiment of the invention, an Internet Shopping Mall is provided, in which multiple retailers will be aggregated under the one banner of the Mall operator. This site includes a number of innovative functions including:

Simple integration of Retailers from their existing Web Sites into the Mall Site.

Search facility across all retailers.

Aggregated shopping cart with single transactions and fulfilment.

#### **Internet Shopping Mall Architecture**

Figure 1 illustrates the Internet Shopping Mall site architecture of the preferred embodiment. Users will be able to access the Internet Shopping Mall shopping functions via a web browser 11 and the Internet 12. Pages will be served via a web server 13 connected to a Java based application server 14. The application server contains a common code library that control access to

a JDBC (Java Database Connectivity standard) database. Also contained on the application server are the Customer Applications objects 16 that are built using the common services layer contained in the common code library. For payments and orders, the Customer Applications will communicate with the Transaction and Fulfilment Server (TFS) 18, this will be via XML messages 19. In turn the TFS will communicate 22 with a bank and payment gateway for merchant processing and order fulfilment 21.

The Internet Shopping Mall of the present invention is preferably implemented around two major components:

- 1) The Internet Shopping Mall System (ISMS) 17; and
- 2) The Transaction and Fulfilment Server (TFS) 18.

These two components interact to provide the full functionality required by an internet shopper. The Internet Shopping Mall System 17 provides the following databases:

- Product / SKU database (catalogue and stock details)
- Retailer database
- Shopper database (including user profile information)
- Content databases

The ISMS 17 will provide a means for the Customer Applications to access the database tables, and for committing and rolling back database transactions.

The ISMS 17 will manage user profile information.

The ISMS 17 will manage the association of user profile information with products in the database.

The TFS 18 will handle the transaction and fulfilment of orders.

The TFS 18 will manage partially fulfilled orders.

The TFS 18 will provide a HTTP/XML API for order management.

The TFS 18 will provide a HTTP/XML API for committing and rolling back transactions on the order database.

The Functional Structure of The Internet Shopping Mall site is illustrated in Figure 2 and the Integration Structure of the site is illustrated in Figure 3.

The shoppers 31 represent an important point of interface with the site 100. Their interaction with the site is limited to a single point, the web server 13, and their connection method will usually be HTTP (or HTTP + SSL), plus SMTP. Alternatives may include wireless protocols such as WAP



Shoppers 31 will be able to transact on the site and use the advanced functionality with a basic web browser and without special plugins – however they will either need to have cookies enabled or the ISMS Application Server will need to embed a session identifier in the page URLs.

5       Retailers 32 are preferably integrated on three levels (refer to Figure 4):

1. **database:** stock control integration: connections with legacy stock control databases to maintain very up to date stock information on the Internet Shopping Mall site, and integration with Point of Sale databases for recording of purchase orders and managing fulfillment.
- 10   2. **pages:** management of page templates to define the display of product and supporting pages.
3. **functionality:** integration with advanced retailer functionality currently offered on a retailer's existing web site beyond that already offered on the Internet Shopping Mall site.

15       In addition, retailers 32 may want to use a Content Management System accessed via the XML gateway 121 to define promotions, manage content on home pages (etc). In the preferred embodiment, stock control information can be integrated at five different levels. In order of sophistication (and broad preference), they are:

- 20   1. **linked:** The retailers or suppliers stock control database is read and updated directly via secure communications channels. No copy is kept on the Internet Shopping Mall side. Preferred method for large, high-volume retailers and service retailers.
- 25   2. **live:** A copy of the retailers products database is kept on Internet Shopping Mall. Updates are maintained in real time, with retailer and web site updates being synchronised between databases. Preferred for most retailers.
- 30   3. **batch:** Same technical setup as live, however changes are 'batched' and processed at timed intervals (e.g. every hour). Useful for smaller, low-volume retailers.
4. **manual:** Retailer does not have their own stock control database, or wants to keep stock control separate. All stock is maintained manually using the retailer management centre. Suitable for small, low-volume retailers with no existing or adequate POS system.

5. **offline:** Retailer sends periodic stock updates via e-mail, FTP or even on floppy disk. Internet Mall must upload the files and integrate into the database. Not suitable for most situations.

The above methods are important to two stages of retailer integration:  
 5 *load* and *maintenance*. A retailer may use one method for load, and a second for maintenance. All five are suitable for load, depending on the setup of the retailer. However *offline* is not acceptable for maintenance.

Methods 1-4 involve communication between retailer legacy systems and the ISMS via the Web API gateway 121. Messages are formatted using an agreed set of XML standards. The XML objects are sent via HTTP. At the  
 10 retailer legacy end, multiple data sources may be integrated, to build the complete set of product information on the ISMS. In the fourth method, the retailer management centre is a simple catalogue management program that utilises the same XML standards and effectively operates as a Web POS. In  
 15 methods 1-3 a range of conversion utilities may be used to synchronise and update the databases.

### HTML Pages

The Retailers 32 on the Internet Shopping Mall will generally fall into different classes of e-commerce readiness. It should be noted that a retailer's  
 20 web sophistication is independent of their stock control database sophistication (for example, a retailer with no existing site may nevertheless have very good stock control databases).

Depending on the retailers satisfaction with their existing e-commerce site, or whether or not they have an existing e-commerce site at all, a retailer  
 25 may chose to design new pages for their ISMS presence, or have their existing pages automatically fetched by the ISMS for presentation to the shopper. Through a retailer management centre 33 retailers 32 use a *page loader* to either (1) load new HTML pages for the Internet Shopping Mall site; (2) nominate URLs where Internet Shopping Mall can load the required pages  
 30 from their existing site; or (3) a mix of 1 and 2.

To serve a page to a shopper 31, the page server 110 can follow a number of possible paths, however, essentially the differences generally relate to the source of information rather than the process.

The page server pulls information from several sources to build a  
 35 single page as follows:

1. Retailer template held in the Retailer's Mall Site template database 116, of retrieved from a template database 216 on the retailer's non-mall site 2000 or if it is a commonly requested page from the template cache 112;
2. The retailer's content held in the retailer's mall site stock database 111, which is updated from the retailer's non-mall stock database 211 on a regular basis;
3. The retailer's content held in the retailer's mall site content database 113, or in the retailer's non-mall site content database 213 if the content is heavily used and is being retrieved from the non-site database 213 it may be held in a cache 118;
4. The mall site "power-bar" template or other mall defined templates which are retrieved from the mall site template database 117; and
5. The mall provided content which is retrieved from the mall site content.

These components are assembled by the page server 111 to produce a composite page for serving to the shopper 31. Referring to Figure 5, an image of a retailer page as served to a user by the shopping mall site is illustrated by way of example. The page is divided into a retailer area 250 which occupies most of the screen and a mall site area 150 which occupies the upper and right hand edges. The retailer area is defined by a retailer page template which includes locators to indicate insertion points for the page content. The page content may include a retailer's logo or banner 252, a number of other graphics or descriptive items 253 from the contents database 113 or 213 and stock information (such as price and availability) from the stock database 111. The shopping mall area 150 is merged with the retailer area by merging the respective templates. The mall area will include a variety of content including current news items 153 or, promotional items 153, navigational buttons 151 to allow the user to navigate around the mall and a house icon or banner 152 which are all obtained from the mall sites content database 114.

Many retailers 32 on the Internet Shopping Mall site 100 will not offer any functionality beyond that outlined below for the Internet Shopping Mall. However a small number of advanced retailers have specialised functionality.

While each retailers requirements need to be assessed on a case by case basis the integration strategy is generally managed in one of two ways:

1. **XML Object integration:** Internet Shopping Mall and the retailer agree on an XML standard to facilitate communication between the Internet Shopping Mall site 100 and the retailer site 200. When a web request on

the Internet Shopping Mall site 100 requires advanced functionality from the retailer 32, an XML request object 102 is sent to the retailers non-Internet Shopping Mall web server 200 utilising an agreed Web API.

Some coding changes are made to the page server 201 on the retailers site 200 that parses the XML and produces an XML response 103 (instead of the normal HTML one). The XML response 103 is parsed by the page server 110 on the web server 13 of Internet Shopping Mall site 100 and rendered in HTML 104 for the end user 31, possibly utilising XSL.

2. **Proxy write-through:** A request on the Internet Shopping Mall site for advanced retailer functionality is handed to the Internet Shopping Mall reverse proxy, which requests 105 the HTML page result 106 from the retailer, parses the HTML received, inserts Internet Shopping Mall functionality and then returns the resulting page 104 to the user 31.

The Internet Shopping Mall also has the ability to run its own promotions on site, perform content management tasks as well as perform basic systems administration. Integration with the banks or payment gateways 301 is required to facilitate shopper transactions through payments from credit card accounts to merchants 32.

The web server receives the initial transaction request from the shopper in aggregate form. The web server passes the transaction to the Transaction and Fulfilment Server (TFS) which disaggregates the transaction, processes the component parts, and passes status information back to the web server for further processing (e.g. displaying receipt numbers, reporting failed transactions, etc). Communication occurs via XML objects.

The transaction module within the TFS is designed to be able to handle the numerous bank errors, service outages and roll-backs that will arise in a running system. The system can also handle multiple payment methods within the one aggregated transaction. This is achieved by the use of server-side e-wallets to hold multiple payment method information.

### 30 **Process overview:**

1. The shopper, after accumulating goods and services in their shopping cart and filling in their payment and delivery details, clicks Buy to complete the transaction.
2. The web server fetches the contents of the shopping basket from the session manager and formats an XML transaction request object. The object is passed to the TFS.

3. The TFS disaggregates the transaction. That is, it divides the transaction into merchants, calculates totals for each merchant, and loops through the merchants in a pre-defined order:

- a) for each merchant, pass a transaction request to the pseudo-gateway;
- 5 b) the pseudo-gateway selects a transaction gateway 301 based on the preferred acquiring bank for that merchant. It is the pseudo-gateway that contains the routing table for each merchant;
- c) the pseudo-gateway is responsible for any immediate retries (e.g. due to connection timeout or broken link), possibly switching the
- 10 transaction to a second (backup) acquiring bank 300 or gateway 301 if the first is not responding;
- d) the pseudo-gateway returns the response from the transaction gateway 301 using a common XML response object.
4. After receiving final responses from all gateways, the TFS aggregates
- 15 them into a new XML response object, and passes it back to the web server. The web server may need to initiate new transactions (e.g. with a different shopper credit card) but these are not distinguished from initial transactions and follow the same pattern.

The Internet Shopping Mall provides a central warehouse to facilitate

20 most retailer fulfilment needs. In addition to the Internet Shopping Mall warehouse(s), some retailers will wish to fulfil orders out of existing facilities without holding stock at the Internet Shopping Mall warehouse. Cross-docking is therefore provided to facilitate aggregated delivery.

After payment processing and retailer notification the TFS:

- 25 • **for retailers aggregating fulfilment with Internet Shopping Mall:** notify the warehouse (fulfilment partner 400) to pick, pack and ship.
- **for retailers performing their own fulfilment:** notify retailer (i.e. acting as fulfilment partner 400) of goods to ship and delivery details;
- **for both:** track the shipment from purchase to Proof Of Delivery (POD) by
- 30 accepting updates from fulfilment providers 400 and third parties.

The architecture is very similar to that of the payment gateway 301, consisting of a pseudo-gateway which will route to the warehouse or retailer as appropriate.

The fulfilment gateway 401 sends orders to the warehouse and allows

35 fulfilment providers 400 and couriers to update the status of an order on its way to the shopper's delivery address(es). Aggregate orders are

disaggregated and re-grouped by shipping address (since a single aggregate order can involve multiple delivery addresses). The gateway can feed information back through the retailer gateway to notify retailers of shipping status (e.g. return to retailer – no such address). The gateway also receives  
 5 information back from the fulfilment providers to allow shoppers to query delivery status online.

### **Content Management System**

A Content Management System (CMS) 101 is provided which incorporates a set of tools to allow retailers to:

- 10 1. manage page templates;
2. create and manage specialised content, such as promotions, reviews and voting;
3. create and manage retailer specific content. For example, a sports retailer may wish to maintain sports news or publish syndicated content.

### **15 General Content Management**

‘Content’ describes anything intended to be displayed on a web page. It may be a mix of HTML and graphics. The content management system (CMS) 101 is not content-type specific.

Each object to be represented needs to be stored in the CMS, which  
 20 may utilise the same database backend as the rest of the site. Each object would be indexed by object number so that they can be called from page templates. The object number should be unique but does not need to attach to particular content. For example, object 23 could be for the leading sports item of the day, rather than a particular story. In this way database updates  
 25 are immediately reflected on web pages without the need for additional coding. Retailers can only access content they themselves have created and therefore access control is enforced by the CMS.

In some cases retailers will require very large or dynamic content (e.g. streaming media) to be displayed via the Internet Shopping Mall site. In  
 30 such a case the CMS may only contain location information (e.g. a URL) to allow access to the streaming media without actually routing the datacast through the Internet Shopping Mall site itself.

Note that the same system will be used for retailers adding specialised content to pages as for Internet Shopping Mall to add its own content (for  
 35 example, to maintain sports headlines in the sports precinct, or to allow a physical location to post news on its news page).

## Promotions

In addition to the base functionality provided by the CMS 101, promotions would have a specialised interface to allow retailers to quickly and easily create and manage promotions. Retailers could define a  
 5 promotion icon (mix of graphics and HTML), set the target demographic and other parameters, set the time range and start the promotion. The site would generate merchandising metrics specific to the promotion.

Promotions information is stored in the Content database, possibly in a separate 'promotions' table. This is because additional information (e.g. sales  
 10 data) may need to be associated with a promotion.

## Voting and Reviews

Content may also be generated by shoppers, who may post reviews relating to specific products, or respond to user surveys using voting forms. The creation, management and control of these two forms of content should  
 15 be run from the same CMS, using the same underlying infrastructure. Due to the specialised nature of the content however, the interface and database tables may be held separately.

## Affiliates

The concept of an affiliate 600 on the Internet Shopping Mall site 100 is broader than the traditional Internet concept. In addition to including off-site (non-Internet Shopping Mall) web sites the Internet Shopping Mall affiliate program will track referrals from Internet Shopping Mall retailers 32 to each other. The affiliate program therefore consists of two technical parts: content and tracking.

25 The content may consist of

- banner ads: while reportedly ineffective as a traffic generation tool it is a low-cost standard format that could be supported by a large proportion of web sites;
- promotions: the promotions content as defined by Internet Shopping Mall and retailers may be exported directly to affiliate web sites;
- 30 • products: product data may be exported to affiliates (in a defined XML format);
- retailers: retailer data or retailer shop fronts may be displayed by affiliates (also likely to consist of XML objects).

35 The tracking component needs to record, for every product purchased, the referring page that led the consumer to that products 'product page'.

There is no distinction between referrals that come from within the Internet Shopping Mall site and those that come from outside the Internet Shopping Mall site. Internet Shopping Mall can then use the referrals data to reward affiliates.

## 5 System Modules

The system comprises the following modules:

- **Shopper Web Interface:** Specifies components visible to shoppers or supporting infrastructure. Consists of entry points (home pages); precincts; shop fronts, merchandising services and transaction services.
- 10 • **Back End Services:** Specifies supporting infrastructure not otherwise covered above, usually because it does not have an interface directly visible to users.
- **Back Office Services:** Management supporting services for both Internet Shopping Mall and the retailers. For example: promotion management, content management, reports.
- 15 • **Internet Shopping Mall Interface:** Interface components and supporting infrastructure for the Internet Shopping Mall Management Centre (WMC).
- **Retailer Interface:** Interface components and supporting infrastructure for the retailers and their Retailer Management Centre (RMC).
- 20 • **Transaction Fulfilment Server:** Components supporting the transaction and fulfilment server.

**Shopper Web Interface:** Entry into the Shopper Web Interface is via a series of electronic 'doorways' into the site – enhancing the basic catchment to encompass affiliate and partner relationships. All pages except the Main Page require a single click access to 'home'.

**Internet Shopping Mall Main Page:** The main page provides a primary entry to the site, featuring the most significant retailers, providing single click access to the key features and promoting high value elements.

The following functionality is associated with the Main Page:

- 30 1. Single click access to all the major precincts.
2. Single click access to each of the key site services (merchandising services and transaction support services).
3. Shop logos for retailers on the main page, which will rotate through the various available retailers dynamically. Retailer icons may be chosen at random, with the distribution being skewed based on popularity or
- 35



license fees. Where a user is a repeat visitor and profiling information is available, retailers may be selected based on that users profile.

4. Promotion space for some merchants, generated from the content management system (promotions subsystem).
- 5 5. Promotion space for Internet Shopping Mall and the site services.
6. The page may also include: voting spaces (to help build a user's profile, collect demographic information, etc); key news regarding Internet Shopping Mall physical centres; and a single large promotion space for a particular Internet Shopping Mall precinct (rotating through the various precincts at random).
- 10 7. Links to best-selling products and retailers.

**Affiliate doorways:** Affiliate doorways provide an entry point to the site from affiliate partners – collecting shop front icons and promotions of particular relevance to the affiliate (eg: sporting shops and promotions for the Rugby World Cup site). Internet Shopping Mall content is presented on the affiliate site, which redirects the user to the Internet Shopping Mall site when clicked. In addition, Internet Shopping Mall retailers can chose to affiliate with other Internet Shopping Mall retailers, maximising any shopper nexus between retailers.

20 The requirements to provide Affiliate Doorways are:

1. The ability to export content from the Internet Shopping Mall site to the affiliate site through the affiliate engine. Content may consist of a mix of HTML, images and other objects. Content may be exported 'live' or in batch to affiliate sites.
- 25 2. The ability for the separate affiliate site to function as an independent element within an existing page.
3. Audit logs to be kept for all traffic referrals from affiliates. The Internet Shopping Mall site must track sales resulting from an affiliate referral and provide this information via the Internet Shopping Mall Management
- 30 Centre.
4. Ability for WMC to create and define new affiliate partnerships and to authorise affiliates to display Internet Shopping Mall content.
5. Each product in a shopping cart to include information on the referring page or affiliate.

35 **Precincts:** Precincts are a core merchandising component of the site, collecting retailers into areas of common interest to consumers and

segmenting retailers to allow them to retain a point of difference. Retailers may appear in multiple precincts where relevant (indeed, they may appear in a number of different locations within a single precinct). The top level precincts are:

- 5     • **Category:** Products and retailers grouped by category or subject matter. For example: fashion, health and beauty, food, home, gifts, SOHO, sports, toys, etc. The final cut of categories and sub-categories is not specified by this document and should be able to remain flexible so that Internet Shopping Mall can adapt the category precinct as it learns more about the online consumer and how they approach shopping on the site.
- 10    • **Event:** Products and retailers grouped by life stage event (e.g. birth, birthday, party, wedding, Christmas, etc). Again the precise configuration of the event precincts needs to remain flexible and under the control of the Internet Shopping Mall web administrator so that the precinct can
- 15    • **Sale:** Collection of retailers and products currently on sale.
- **Centres:** Broken down by real-world mall. Each mall would contain the retailers who have a presence in that mall. Mall staff will also need to be able to add mall-specific content (e.g. current events at Miranda).
- 20    • **My Internet Shopping Mall:** A personalised precinct.

**Core Precinct Requirements:** Precincts share some common elements and structure. The following are goals and requirements that all precincts share.

Functionality required to support the various Precincts includes:

- 25    1. Single click access to all the other major precincts and to the Internet Shopping Mall Main Page.
2. Single click access to each of the key site services.
3. Shop fronts for most significant retailers in precinct (only in precinct sub-categories).
4. Promotion and logo spaces for merchants and for Internet Shopping Mall services. Where retailers are listed in specific precincts, or have specific promotions, the capability to link to that specific area within the retailers site (and not just to the retailers home page).
- 30    5. Voting spaces, including feedback from previous surveys. Once a user has voted, the page should display aggregate results collected so far.
- 35    6. Key content relating to the particular precinct, pulled from the CMS.
7. List of precincts best-selling products and retailers.

8. Retailers may be listed in all precincts where they are relevant – as configured in the precincts database under the control of Internet Shopping Mall.
  9. Space for 'rotating' retailers, with the share of impressions based on popularity, user profile or fees paid.
  - 5     • **Category:** Approximately ten to twelve major precincts organised around major categories of shopping lifestyle / category interest. For example: fashion, health and beauty, food, home, gifts, SOHO, sports, toys, etc. The makeup and breakdown of categories should be able to remain flexible so that Internet Shopping Mall can adapt the category precinct as needed.
  - 10    • **Event:** Approximately 10-12 precincts organised around life stage events (e.g. birth, wedding). The makeup and breakdown of categories should be able to remain flexible so that Internet Shopping Mall can adapt the category precinct as needed.
  - 15    • **Centres:** Thirty one precincts representing the real-world physical malls, grouped by state. Each real world precinct would contain retailers and news relating to it, as maintained by Internet Shopping Mall.
  - 20    • **My Internet Shopping Mall (Customisation) :** A personalised precinct which collects shop fronts, promotions and content around particular interests of a registered shopper.
- Requirements to support Personalized Precincts are:
1. Key content relating to the particular shopper profile
  2. Live-linked list of best-sellers relevant to shopper profile.
  - 25    3. Initial registration must consist of no more than 10 questions, and must provide registered shoppers with a password, using their e-mail address as their username.
  4. Ability to create an e-wallet: the collection of credit card information (and when technology allows, debit card information) so that users need only enter credit card details once.
  - 30    5. "What's New" service displaying a list of new features added since the users last visit (generated from the CMS).
  6. The development of the user profile should be incremental. Coarse-grained profiling based on the very first product purchases or responses to survey questions at registration would be refined over time based on
  - 35

pages visited and products bought. Further refinements are possible through single question user surveys run from precinct pages.

7. Users should be able to customise colours, select their favourite retailers explicitly as well as manage account information (track orders, view purchase history, create and edit gift registries and manage e-mail list subscriptions).

**Sale:** Discount precincts collect discounted goods offered by retailers.

To support Personalized Precincts requires:

1. List of retailers currently running 'store wide' sales.
2. List of products currently on sale, organised by category.
3. List of best selling sale items and retailers.

**Shops:** The shops are the arrangements of all products, content and information relating to a particular retailer.

The functionality required to support Shops on the site are:

1. All shops should also have access to the common services in this section (e.g. gift registry) on a shop-wide scale.
2. All shop pages must contain the Internet Shopping Mall navigation bar, however the design of the rest of the page is entirely up to the retailer.
3. The minimum number of pages that may constitute a shop site is 5:
  - a main page (home page)
  - top-level category template
  - second-level category template
  - product template
  - an 'about us' page with contact information, return policy, etc.

The HTML pages define page structure – not content. The content needs to be built dynamically from database sources (either the products database or CMS). Support dynamic population of pages with content sourced from the CMS or products database.

Provide a sandbox environment, so that retailer shop templates cannot access data from other retailers in the run time system.

### **Shop Site Design**

#### **Core Elements**

A Shop Site must have the following core design elements:

- |            |   |
|------------|---|
| Shop icon: | The representation of the Shop Site both within the Mall Site and in any affiliate sites. |
| Shopfront: | The front page of the Shop Site.  |

Merchandise shells: The pages that merchandise the types of products in the Shop Site.

Product shells: The product templates that frame the Licensee's products.

- 5 About Us page: The Licensee must provide a page which includes a short biography of the company, to engender trust in the customer's minds.

### **Merchandising Data**

10 Images: Images are generally included for all products capable of being photographed. The Retailer provides both full-size images and thumbnail (smaller and lower bandwidth) versions of the image.

15 Full size images must be no more than 256 colours and 50K in size. Thumbnail images must be no more than 16 colours and 5K in size.

20 All images must be titled with the SKU or unique identifier of the product, and the identifier of a thumbnail image must include an '\_t' immediately preceeding the dot extension (.gif)

E.g. for a product with the SKU 123456, the main image would be 123456.gif and the thumbnail 123456\_t.gif.

25 Product text: Product text is provided by the retailer in either word, ASCII text, or Microsoft Excel format, with data either in consecutive columns of a table, tab delimited, or CSV form. The row structure is as outlined in Table 1 (Attached) with the product identifier matching the name of the corresponding images.

### **30 Draft Product Text Row Structure**

<b>Field</b>	<b>Description</b>
Product ID / SKU:	Unique identifier for a product, possibly the product's SKU, PLU, or some variant, must be generated so that "neighbouring" products (e.g. same item in a different colour) can be easily

	located based on product ID alone.
Short Description:	A short description of the product, such as its name, being less than 255 characters (including spaces), for the purposes of identifying the product in lists and search results.
Long Description:	A longer description (less than 200 words) containing more information.
Small image:	Name of file, containing thumbnail image for product listings and search results.
Large image:	Name of file, containing larger, higher quality image.
List Price:	Recommended retail price or vendor's list price.
Sale Price:	Current sale price of the item. If unspecified, the default will be the list price. If there is a discount for multiple or bulk purchases, then this must also be listed.
Category:	A slash delimited path to the product specifying the categories and sub-categories. For example, the category may be "Jeans/Levis/501" or "Books/Non Fiction/Australian History".
Colour:	Available colour(s) of the product.
Size:	Available size(s) of the product.
Stock Level:	Current stock level for this item.
Alert Level:	Lowest stock level allowed before the Retailer is notified that stock of that item is low and the product needs to be re-ordered.
Intra-Shop Associations	Comma delimited list of the product IDs of the 5 most complementary other products within the merchant's product set.
Inter-Shop Associations	Comma delimited list of the 5 most complementary products beyond the merchant's product set.

Additional Fields	Additional fields may be specified, by sending a second file, listing additional field positions and their corresponding meaning. For example:
	ext. 1      Platform
	ext. 2      OS
	ext. 3      CPU

- The Internet Shopping Mall offers to retailers a service that utilises any investments they have already made in their web presence. The Internet Shopping Mall therefore reproduces only the HTML pages – leaving content and product data to be sourced from their databases via the retailer gateway and Internet Shopping Mall products database (which acts almost as a cache).

- The Mall of the present invention differs from previous attempts at mall design which shoe-horned retailers to fit into a particular template and page layout. The result was no branding or differentiating factors for retailers and a less than compelling experience for shoppers.

**Search:** The search facility provides rapid non-linear access to the site and allows shoppers to categorise the search by a variety of criteria.

Useability research shows that users often resort to a search engine when it is not immediately apparent where they should proceed from a given page. Despite users low expectations of search engines they remain a popular and often used navigation device. Given users low expectations, the Search Engine of the Internet Shopping Mall site is designed to exceed those expectations consistently and dramatically through the quality of the search results. This means using thesauri and phonetic matching as well as freeform style search queries and using the inherently structured nature of the data to maximise relevance. The aims of this function are to:

1. Provide accurate and relevant search results based on product-centric search criteria to maximise the ease with which shoppers can find the products and services that they are looking for.
2. Build a library of common search queries and the results most often selected.
3. The product search feature should never return 0 results.

The requirements to support the Search function are:

1. The search facility are be available from each page of the site in some form. The search should immediately execute by the user pressing the return key or a search button.
- 5 2. An advanced search ("power search") is available allowing segmentation by the following criteria – product, store, brand, price, category-specific criteria as well as keywords. Searches cover the entire site by default. A simple search uses the same underlying search engine, with neutral defaults selected for all criteria except keywords.
- 10 3. Search results should return with no more than 10 results in a given page. If a search results in 0 matches then the criteria are be loosened and the search repeated immediately so that the user always gets at least some results from any given search (the user is warned that there were no exact matches and that the next closest matches are being displayed instead). Users will never receive 0 matches for a search query.
- 15 4. Results are be ranked only by relevance to stated criteria.
5. Results return thumbnail graphics as well as the retailer's name/logo and short descriptions of products (as entered by the retailer). The search engine will use phonetic matching (e.g. metaphone algorithm) to catch phonetic spellings (or misspellings) and partial matches to catch 'off by one' misspellings. The search engine will also need a thesaurus available to it.
- 20

**Shop Together:** The shop together service allows shoppers to 'join together' and shop online – each member shopper's click notifying all members of the group of the location of a particular member. Groups are likely to be limited to 2-3 people. This will increase both traffic and conversions by providing a shared experience for shoppers, which will increase shopper confidence in purchases and increase transaction volumes. This feature also provides community-style services to counter-act some of the perceived negatives of shopping on-line.

30 The system functions and operations supported by the "shopping together" feature are:

1. A 'shopping group' can be formed by a single registered shopper naming the group and entering a short description.
2. Subsequent shoppers must actively elect to join a 'shopping group' – but they do not need to become registered shoppers. The group founder can invite users to join the group via e-mail (with an included URL).
- 35



3. When a shopper joins a group, they are taken to the shop / service where the current group resides. Each member can browse independently however, moving about the site and communicating with other members utilising an in-browser chat window.
- 5 4. Any member of the group can request the group's attention by clicking a 'look at this' button – providing an optional hyperlink to the requestor's current page. This would appear in the chat window which, when clicked, would load the new page mentioned.
5. Registered shoppers can schedule new group shopping visits on their shopping calendar and send email notification to members of the group
- 10

The reasons supporting the inclusion of a “shop together” feature in the Internet shopping mall are:

- E-commerce sites do not always engender confidence in purchases, contributing to a high degree of abandoned shopping carts. Enabling collaborative shopping would increase confidence in purchases and lessen the percentage of abandoned shopping carts.
- 15 • It is also clear from market research that most people shop with a partner or friend in the real world. The feature is novel and allows for a shared and fun experience (increasing traffic) and collaborative, informed purchases (increasing conversions).
- 20 • A large percentage of traffic originates in referrals from existing users. This feature provides both an avenue and trigger for referrals and an incentive for people to follow the referral and visit the site.

The points of integration for the shop together feature are:

- 25 • Shopper database.
- Shop together engine.
- E-mail engine.

**Locate a Store:** A service that allows shoppers to get the address and directions to the nearest outlet for a nominated retailer. This function provides accurate information (including map) on the location, and opening hours, of the nearest outlet of a given retailer, given a post code or suburb / state of the shopper.

1. Shoppers will preferably receive a map, with the exact location highlighted. Shoppers will also be able to zoom in, out, get street directory reference number and print the map. By entering a residential address (which will default to last delivery address if the shopper is
- 35

registered and logged in), shoppers will also be able to get a list of driving directions.

**Precinct builder:** The precinct builder allows dynamic creation of precincts by populating a series of precinct templates with precinct content.

5 This function will facilitate rapid changing of precinct content (but not structure) by allowing dynamic building of precincts using a CMS and other database driven content. Repeat visits are encouraged by ever changing content on the main pages. The content is best managed by non-technical marketing staff who need a technical infrastructure to manage their content  
10 and promotions programs.

Allowing multiple segmentations of the market will help users to refine their view of the web site to something closer to their needs. This requires a large number of precincts which can be managed from a central mechanism to minimise maintenance and overheads.

15 The requirements to provide this function include:

2. A series of precinct templates - one for each type of precinct
3. Population of the precinct templates with shop icons, promotions and content relevant to the particular precinct
4. A *scalable* and open architecture, interfacing easily to content beyond the  
20 scope of the basic engine
5. Key navigational structures (navigation bars, site maps, text alternates) must be dynamically created as each precinct is built.

Integration points for the Precinct Builder include:

- retailer, product, promotion, and content databases:
- 25 • web developer page loader.
- Internet Shopping Mall management centre.

**Shop Build Engine:** The shop builder allows retailers to build and maintain best-practice internet shops at significantly reduced cost by dynamically populating marked templates with product content.

30 Shop Builder support a scalable architecture for the site that can manage 400 retailers, by moving common functionality into a base engine and allowing the full retailer site to be built out of no more than a handful of templates by populating pages dynamically with database content. Dual-site generation facility is also supported, so that the shop build engine can build  
35 a Internet Shopping Mall integrated shop site as well as a 'neutral' shop site that does refer to Internet Shopping Mall but uses the same technical

infrastructure to generate the site. The above is achieved without resorting to primitive templating techniques that homogenise retailers or restrict their design freedom beyond the requirements of the shop site specification. An overriding consideration of the Shop Builders that Pages must be built and returned to users quickly.

The procedure for shop building is as follows:

1. Retailers to provide a series of shop templates as outlined in the Shop Site Specification. The shop builder is designed to produce a shop indistinguishable in quality from best-practice shops in each category – this means that the templates should not be restricted by arbitrary design guidelines or limitations imposed by architecture.
2. Shop pages are made rapidly accessible by shoppers – either by pre-compiling HTML output or by caching pages. Page caching may occur at the reverse proxy level.
3. The sites must be of a scaleable and open architecture, interfacing easily to components beyond the scope of the basic engine.
4. All functionality available to the broad site is also available to a specific retailer on a limited scale – including gift registries, product finders and search engines.
5. Navigational structures (navigation bars, site maps, text alternates) are dynamically created as the page is served, where necessary, to indicate context (e.g. greyed-out menu items).
6. Retailers need are able to populate pages with both product data and content managed through a single Content Management System (CMS).
7. Each function must be provided with a domain parameter – specifying site, mall, sub-site etc.
8. At the mall level, all Internet Shopping Mall services and retailers are visible from the shop site. In 'neutral mode', the shop builder generates a shop site without reference to Internet Shopping Mall. The Internet Shopping Mall functionality outlined in 0above is restricted to the retailer and only the products and services specific to the retailer are visible.

One of the several processes for page building is as follows:

- Web developers 500 (or the retailer themselves) use the *page loader* to upload their pages for each retailer 32, 200 into an account tied to the web developer 500. The pages are provided in HTML form with supporting web objects (e.g. images). The page is compiled – ie references to

dynamically populated content are converted to an EJB call specifying the product SKU or content ID and the required field.

- The page loader moves the retailer pages into a retailer-protected staging area (ie only accessible to the retailer and the Internet Shopping Mall).

5 The page loader notifies Internet Shopping Mall by e-mail that new pages are ready to be approved. Internet Shopping Mall approves the pages or rejects with comments. If approved, the pages are moved into live space.

- Pages define structure and layout – they do not define content. Content is defined through the CMS 101 and stock databases 111.

10 • The minimum five pages are

1. Main page (home page)
2. Top level category page template (e.g. menswear, womenswear, etc)
3. Second level category page template (e.g. jeans, shirts, accessories, etc)
4. Product page template

15 5. 'About us' page with contact details, return policy, store location and other retailer information.

- The retailer can add additional pages at their discretion, according to the Shop Site Specification.

20 • When a page is requested it is dynamically populated based on information in the URL and returned to the browser 31. Reverse proxies may be used to provide caching 112 of pre-compiled HTML.

The Page builder must integrate with the rest of the site via the following integration points:

- products, retailers, shopper, promotion, and content databases 15 (111, 113, 114).
- web developer page loader.

The "CORE" application 17 provides 3 fundamental capabilities to the Internet Shopping Mall Internet mall implementation:

1. A flexible, easy and intuitive process for retailers to design their shop sites and move the into the Internet Shopping Mall environment.
2. Provide a shop display engine responsible for displaying an integrated shop site by merging templates with database content to dynamically serve HTML pages.
3. Provide an interface to major components within the Internet Shopping Mall Internet mall application.

In providing these capabilities the “CORE” application 17 implements security measures to ensure unauthorised access to data or functionality whilst providing little or no restrictions on the web designers.

### **Shop Site Staging Area**

5       The purpose of the Shop Site Staging Area (SSSA) is to provide a transition area for a retailer’s web site design (HTML pages) to move to the Internet Shopping Mall Internet structure, format and architecture. It provides the retailer (or their web developer) a secure environment where they can:

- 10       • upload their web site;
- preview the uploaded web site (in HTML format);
- convert the web site to the Internet Shopping Mall format;
- preview their web site in the Internet Shopping Mall format.
- 15       • The SSSA also provides the environment for Internet Shopping Mall “mall” administrators to review and publish the web site to the live Internet Shopping Mall Internet mall.

### **Shop Site Construction**

To provide a process to the retailer that applies minimal creative restriction in shop design while requiring no intervention from the retailer (or Internet Shopping Mall) to move the shop design into the Internet Shopping Mall Internet format necessitates a number of guidelines.

Although the SSSA could be used as a development platform it is envisaged that the retailer’s web developer will prefer to prototype and develop the web site on their own development environment.

### **25   Site Directory**

The Internet Shopping Mall shop implementation is based upon a retailer defining templates for differing categories of products and templates for products within a category.

30       A key issue is to allow the web developer 500 and retailer 32 the freedom to organise and develop their site with no or minimal restrictions whilst being able to move the site into the Internet Shopping Mall format with no or little re-work.

To facilitate this process the web developer is required to define and implement the site category hierarchy in a web directory structure (there is potential to do this at various levels). Within each category directory would

be a template (or pointer to a template) that would define how that category is to be displayed or how the products for that category are to be displayed.

An example is a web developer developing a site for Paddy Palin that has level 1 categories of Tents, Clothes and Camping. Under Camping it had  
 5 level 2 categories of Sleeping Bags, Tools, Cooking and Lights. Under Sleeping Bags it had level 3 categories of Mont, MacPac, Paddy Palin which were the companies that made sleeping bags. Under each of these brand names were listed their products.

The web developer 500 would create a web directory structure to  
 10 mimic the category hierarchy:

eg. *web home\paddypalin\camping\sleepingbags\mont*. This directory structure will define the URL to each category and product ie. to list the sleeping bags at Paddy Palin the user will enter:

*http://Internet Shopping Mall.com/paddypalin/camping/sleepingbags*

15 In each of these directories held in the template database 116, would be the template (or pointer to the template) that defines how this category is to be displayed. In the case of the bottom most category then the template defines how the product is to be displayed.

The benefits of this approach are:

- 20 • the web designer and retailer can easily define the hierarchy and of the site;
- the retailer can define different templates for categories at the same “level”;
- the web designer can demonstrate a site to the retailer as it will be viewed  
 25 in the Internet Shopping Mall mall (in their own environment or Internet Shopping Mall’s);
- “hard coded” pages and hyperlinks (eg. help and about us pages) will still be resolved when placed in the Internet Shopping Mall environment (assuming relative addressing is used);
- 30 • no re-work is required to convert the site into the Internet Shopping Mall environment (assuming all guidelines are adhered to).

A detraction of this approach is the effort to construct and maintain a directory structure for retailers that have a large category hierarchy

### **Templates and dynamic data**

Template files define the layout and style for presenting category or product information. A template file is a HTML file within the shop site that contains a Dynamic Data Stub (DDS).

5       A DDS is a placeholder that signals to the Internet Shopping Mall environment that content external to this page is to be inserted at this location (eg. from the CMS database 113, 114 or product database 111).

      DDSs are supplied to web designers in the form of GIFs with guidelines on the syntax to be provided within the HTML to allow the Internet Shopping  
10   Mall environment to associate the GIF placeholder with the target data source.

      The collection of DDS placeholders will be enhanced as web designers/retailers require differing interaction and presentation for their customers. Through plug-ins to popular web design environments (eg.  
15   Dreamweaver™), a DDS toolbox will allow the designer to quickly select and place the appropriate DDS placeholder prompting the designer for the DDS data source (if appropriate) and presentation requirements (eg. style, layout, colour etc.)

      It is anticipated that the majority of templates will be a collection of  
20   HTML tables consisting of any number of DDS GIFs.

### **File formats**

      Templates are to be provided as text files in HTML format (ie. not in ASP, JSP or some other format that serves HTML).

      Static HTML pages are to be provided as text files in HTML format.

25       Content may include any of the commonly used media rich formats (eg. GIF, JPEG, AVI, QT, QTVR etc.).

### **Site upload**

      Once the retailer is satisfied with the layout and content of their site it is uploaded to the Internet Shopping Mall SSSA.

30       This action requires the entire site to be uploaded from the web developer's environment to the SSSA maintaining the directory structure and including the template files, static files and required images.

      Once the site has been uploaded to the SSSA the web developer and retailer will have the capability to review the uploaded "HTML" site in the  
35   Internet Shopping Mall environment.

### Site conversion

Once a site is in the SSSA the retailer is in a position to convert their site into the Internet Shopping Mall format. Conversion will be performed by the SSSA Site Converter (via the SSSA menu bar).

5 Clicking the Site Conversion on the SA menu bar will prompt the user for the base URL and prompt the user to re-authenticate. The SA will then walk the shop site tree to:

- validate the template structures and syntax;
- convert the DDS GIFs to servlets/droplets;
- 10 • create XSL script files where required to define the presentation of the data returned for the relevant DDS placeholder;
- convert the template HTML pages to Dynamo™ \*.jhtml pages;
- resolve hyperlinks in the templates and static HTML pages;
- validate the category URLs against the product database;
- 15 • store the category URL/template pairs in the template lookup table;
- e-mail the retailer and Internet Shopping Mall that the site has been converted;
- log the conversion details.

20 The retailer along with Internet Shopping Mall can now review the site under the Internet Shopping Mall mall architecture as if running in the live environment.

### Directory conversion

Once a site has been translated to the Internet Shopping Mall environment the retailer can modify, upload and translate individual  
25 directories (categories) templates in the SSSA (via the SSSA menu bar). If required the template lookup table will be updated.

### Page conversion

Once a site has been translated to the Internet Shopping Mall environment the retailer can modify, upload and translate static pages in the  
30 SSSA (via the SSSA menu bar).

### Site approval

When the retailer is satisfied with their site they will submit a request for Internet Shopping Mall to publish their site in the live mall. On internal approval to publish (copy) the site then the Internet Shopping Mall staff  
35 release the site in the live Internet Shopping Mall mall environment.



In essence, this act will copy the appropriate static HTML files and supporting images, and template lookup information from the SA pre-approval area to the live mall environment.

A “live” timestamp will be recorded for all site, category and static page activations.

#### **Conversion reports**

After each conversion (site, directory or page) the SSSA will display a conversion report detailing:

- each catalogue and page converted;
- 10 • details of DDS translations including the XSL file name and location (if created);
- any errors encountered.

#### **Audit trails**

The SSSA will provide auditing on the following events:

- 15 • access to the SA;
- upload of site/files to the SA;
- compilation of sites/files in the SA;
- disabling a site;
- deletion of a file or site.

#### **Shop site view**

The SSSA will allow the retailer to define the mode of presentation for their site. They will be able to select either Neutral mode or Internet Shopping Mall mode. In Neutral mode the SSSA will serve pages based on the “neutral” template supplied by the retailer. In Internet Shopping Mall mode the SSSA will serve the shop pages based on the “Internet Shopping Mall mall” template supplied by the retailer. In this mode the retailer has the option to view the ages with or without the Internet Shopping Mall navigation bar.

**Content Management:** The Content Management System (CMS) 101 is a service for both retailers and the Internet Shopping Mall to create and define content which is then dynamically ‘plugged’ into HTML pages prior to being sent to users. The CMS allows non-technical staff operating a client terminal 120 to quickly and easily create content for display in various parts of the retailer sites or Internet Shopping Mall precincts. The CMS is used to facilitate a dynamic and ever-changing content matrix to entice shoppers and encourage both purchases and repeat visits. It provides a single point of

control to manage security issues relating to the introduction of content on the Internet Shopping Mall site.

The functions required to support the CMS are:

1. Authentication of retailer or Internet Shopping Mall staff member.
- 5 2. Create content either in HTML form, or allow the uploading of richer content objects (Flash files, images, sounds, QuickTime movies, etc).
3. Allow content to be time limited (e.g. only display from 1-Jan-00 to 2-Jan-00).
4. Allow content to be targeted to particular user profiles or triggered by
- 10 events (e.g. viewing a particular product).

Just as retailer pages are populated with content from the products database 111 so too can they be populated with additional content from a content database 113, 114. The web developer may specify for example "top headline goes here" and the page builder will fetch the content from the

15 content database 113, 114 and populate the HTML page with it. *Note* that the content can be from the retailer's private content database 113 or the mall operator's universal database 114. The mall operator may also have a content database for exclusive use in mall generated areas of the site.

All content is time limited. The start time may be 'immediately' and

20 the end time may be 'never' or otherwise dates may be chosen. New content can be loaded automatically into the database, and pages do not need to be reloaded since they contain only hooks and HTML structure.

It is also important that content removal be controlled in such a way that does not cause broken images or missing content on pages where that

25 content is still required.

The main points of integration of the CMS 101 with the system are via content, and shopper databases, and page builder.

#### **Internet Shopping Mall Interface**

**Internet Shopping Mall Management Centre:** The Internet Shopping Mall

30 management centre allows Internet Shopping Mall to manage the centre and view key metrics. This function facilitates technical and non-technical Internet Shopping Mall staff managing all aspects of the Internet Shopping Mall site: content and promotions; preview and approval of shops and precincts; performance and merchandising metrics and billing. It also

35 provides a single point of interface for centre management to facilitate security and auditing.

Most aspects of the operating of the Internet Shopping Mall site will be managed by business managers with no technical background. To best perform this role the WMC is organised around business functions, rather than reflect the underlying technology or architecture.

5 A major security threat comes from authorised staff members making unauthorised changes, or unauthorised staff members gaining any access at all. Most security compromises come from internal threats – therefore strong authentication, auditing and accountability is required to minimise risk.

1. The functions provided by the Internet Shopping Mall Management  
10 Centre interface are: Ability to preview and rebuild online shops and precincts.
2. Performance metrics for site, categories and shops and ability to generate reports.
3. Stock management tools to alter stock if needed.
- 15 4. Real-time monitoring of site traffic and sales by segment.
5. Promotions and direct marketing tools to manage campaigns.
6. Content management tools to manage other content requirements.
7. Order status information for all site orders.
8. Data mining centre to examine shopper, transaction and product  
20 information throughout the site and by category.
9. Billing information for the site.

The Internet Shopping Mall Management Centre interface allows centre staff to log on from their browser to the ISMMC. They will only be authorised to create content or promotions for their particular precinct. They  
25 may create or upload content, set business rules governing the display of the content, then activate the display of content. They may then track impressions and click-throughs to measure the success of the initiative.

Head office staff may log on from their browser to the ISMMC to get retailer sales figures for the purposes of billing. If sales have dropped or  
30 risen sharply they may wish to examine recent retailer promotions to learn from the success or failure of the program to build a knowledge base of what constitutes a successful on-line campaign.

Head office staff may create Internet Shopping Mall promotions to be run on-site or through affiliate partnerships. They will need to create new  
35 affiliate programs, publish content through those programs, and then track the success (or otherwise) of the affiliate.

Technical staff will need performance figures and trends for the purposes of capacity planning and predicting spikes in network load.

This interface is required to integrate with all databases, components and functions of the internet shopping mall.

- 5 **Affiliate Management:** The Internet Shopping Mall system incorporates a tool to create and manage affiliate partnerships: creating new affiliate programs, authorising affiliates to download selected content, and then tracking sales resulting from affiliate referrals.

The features of the Affiliate Management module are:

- 10 1. Secure logon so that only authorised Internet Shopping Mall staff can create a new affiliate program.
2. Content may be exported from the Internet Shopping Mall site to the affiliate site through the affiliate engine. Content may consist of a mix of HTML, images and other objects. Content may be exported 'live' or in
- 15 batch to affiliate sites.
3. Audit logs are kept for all traffic referrals from affiliates. The Internet Shopping Mall site must track sales resulting from an affiliate referral and provide this information via the Internet Shopping Mall Management Centre.

20 Briefly the operation of the Affiliate program is as follows:

- Internet Shopping Mall staff will create affiliate accounts, with an affiliate ID used to track transactions resulting from referrals.
  - After a user clicks on affiliate content and visits the Internet Shopping Mall site their session contains the affiliate ID. If the user proceeds to
- 25 checkout and makes a purchase then the affiliate ID is credited with the purchase.

The main points of integration for the Affiliate Program with the Internet Shopping Mall are:

- shopper, and transaction **databases**
- 30 • Affiliate tracking software.
- Affiliate content export engine.

**Retailer Interface:** The retailer interface consists of two parts: stock database integration (Inventory and Product Database) and the Retailer Management Centre (RMC).

- 35 **Inventory and Product Database:** This module provides integration of retailers existing stock and inventory control databases, or point of sales

(POS) systems, to provide real-time or batch updates of Internet Shopping Mall's products database.

E-commerce sites must present users with up to date stock information, including stock availability and expected shipping times if they are to add sufficient value to users to be worth using. This information must come from the retailer and must be updated as frequently as the data requires.

A major concern for a retailers operating on the Internet Shopping Mall site is cost, and a major goal of the project is to substantially reduce the cost of retailers wishing to operate online. Integration with existing systems allows retailers to leverage off existing investments in IT infrastructure and expertise and also ensures high quality data reaches the Internet Shopping Mall site.

The Inventory and Product Database enables accurate collection of retailers products data (including stock levels) for use on the Internet Shopping Mall site to facilitate high-quality, accurate and up to date stock information for consumers. This function adds value to retailers by integrating with their POS, minimising the retailers overhead in conducting e-commerce and reducing their costs.

The Inventory and Product Database provides the following functions:

1. Facilitate an integration at one of the following levels: linked, live or batch.
2. Accommodate full range of available retailer information, minimising the amount of 'normalisation' that must occur to accommodate the retailers legacy systems.
3. Stock information must be updated either when (1) the retailer makes a sale and takes the stock from the same area that online sales are filled from; or (2) a sale occurs on the Internet Shopping Mall site.
4. Internet Shopping Mall stock records may be updated from multiple sources: e.g. retailer POS system, inventory control system, agency system.

Integration between the Retailer system and the Internet Shopping Mall occurs as follows:

- Retailer legacy databases are interfaced via 'plugs' which convert from the retailer system to a standard XML data stream. Updates are sent via the

net to the Internet Shopping Mall site where the XML stream is loaded into the RDBMS.

- System to allow retailers the ability to amend stock information in the database. Writes can be directed back via the MSMQ + plugs system to legacy POS systems (or not). Alternatively, the system can take the place of a POS (may be useful to small retailers with no existing POS).

Points for integration of the Inventory and Product Database with the rest of the Internet Shopping Mall System are:

- products, and retailers **databases**
- XML product receiver.
- External: retailers, agencies, etc.
- Retailer Management Centre

**Stock Management:** The stock management service allows retailers to update and manage their stock levels in their Internet Shopping Mall internet shops.

- E-commerce sites must present users with up to date stock information, including stock availability and expected shipping times if they are to add sufficient value to users to be worth using. This information must come from the retailer and must be updated as frequently as the data requires.

- By allowing integration with existing systems the stock management service again allows retailers to leverage off existing investments in IT infrastructure and expertise and also ensures high quality data reaches the Internet Shopping Mall site.

- The stock management service provides a facility for retailers to create, edit and delete SKUs and fill-in gaps in their product profiles and information. Information includes stock levels, with notification of when stock falls below the alert level.

- The stock management service also provides a stock and inventory management system for those retailers lacking a sufficiently sophisticated POS system.

The stock management service provides the following functions to the retailer:

1. Ability to add / remove and edit product content.
2. Access to stock level history over recent period.
3. Email-based notification of low-stock levels.

4. Ability to define profiles for products matching shopper and event profiles.
5. The typical operation of the stock management service is as follows:
6. Retailers log on to the RMC and access the Stock Management screen.
- 5 The screen lists all categories and SKUs and allows retailers to create, edit or delete SKUs.
7. Retailers can view stock whose stock level has fallen below the alert level, sort stock by sales volume or other criteria.
8. Retailers can upload new content, such as product images, or edit any
- 10 part of the stock information.

Integration with the rest of the Internet Shopping Centre is through the following integration points:

- products, and retailer databases
- RMC.
- 15 • Stock & Inventory gateway.

**Page loader:** This is a facility for retailers to upload new page templates for the management of the Internet Shopping Mall to review, prior to making the new page active on the live site.

20 This provides a central monitoring point to ensure that the management of the Internet Shopping Mall retains control over the final quality of shop sites and conformance to the shop site specification.

The Page Loader also provide technical infrastructure for retailers and their web designers to upload and review new page designs.

The system requirements for the Page Loader function are:

- 25 • Secure logon for web designers, who can access page upload areas for only those retailers that they work for.
- Page compiler converts references to data to EJB calls and coverts the HTML page to a JSP.
- Notification facility so that retailers and Internet Shopping Mall can be
- 30 informed when there is a page for review.
- The Page Loader, when in use requires the following actions:
- The web developer logs on to their account and uploads the retailer pages into retailer specific directories (named by the retailer ID). Once loaded the page loader performs some preliminary checks (compiles the page,
- 35 checks size and HTML compliance) and notifies Internet Shopping Mall of the new page.

- When uploaded the page contains 'stubs' to act as placeholders where information should go. For example "this is the short description" or "large image goes here". This can be done by using standard text or tags to denote content types. The page compiler converts these tags to EJB calls with the appropriate fields filled in.
- Internet Shopping Mall management can approve or reject the page with comments. If approved the page is moved into live space. If rejected the web developer is e-mailed with the reasons for rejection and required action.

10       The points of integration of the Page Loader with the Internet Shopping Mall are:

- e-mail engine.

Metrics

## DATABASES

15       The core databases of the development will be described below. These information stores cover key retailer, shopper and transaction-based information. (NB: These are logical information stores – and may in reality comprise a number of databases).

20       **Shopper Database:** Shopper information assists the site in maximising convenience and tailoring content and product to shopper needs.

Requirements:

### **Retailer Database**

**Description:** Retailer information contains the non-product information needed to build the retailer's site

25       **Product Database**

**Description:** All key information about all listed products

**Transaction Database:** The transaction information store contains a record of all the transactions processed by the system

30       **Content Database:** Additional content and entertainment for the site – both formal and informal

**Promotion Table:** Information store containing details of all promotional campaigns conducted by the merchants



## Dictionary of Terms and Abbreviations

Term	Definition
846	A 3PP EDI message. Stock Reconciliation Process. Synchronises agreed inventory levels between supply chain information systems.
850 - Outbound Sales Order	A 3PP EDI message. This is split by the retailer and describes the items required for delivery.
856 - Manifest	A 3PP EDI message. Provides status on items ready for shipping. See also: ASN.
888	A 3PP EDI message. Amend the stock SKU catalogues for a retailer. Typically sent from a retailer to a warehouse to notify addition of new stock codes.
Acquiring Bank	The financial institution responsible for maintaining merchant bank accounts.
Aggregating Stock Provider	Synonym of Central Warehouse.
App Server	Application Server. Synonym of WIST Front end.
ASN	Advance Shipping Notice. Also known as an 856 EDI Message.
Assumed Delivery	A delivery that is assumed to have occurred after a specified amount of time has elapsed since the goods were dispatched. This kind of delivery assumption will be made for delivery agents who have no means of informing TFS of the status of goods being delivered.
Authorise funds	An initial step in a two-phase financial settlement process. 'Freezes' or holds funds ready for final settlement.
Back Order	A customer order for goods currently not in stock.
Call Centre	An area of Internet Shopping Mall that assists customers over the telephone. Call Centre operators use the CRM.
Cancelled Order	An order that is cancelled by the shopper or by the

	system administrator
Capture funds	The process of debiting funds from an account. In a two-phase settlement, this process will follow a prior funds authorisation. See also: Authorise funds.
Central Warehouse	A managed central store of goods from multiple retailers
Centralised Fulfilment Model	A fulfilment model where the stock provider is a central warehouse and the delivery agent is a common delivery agent organised by Internet Shopping Mall. Also known as Model 1.
Collection	This refers to the processes of a shopper collecting goods from a collection point.
Collection point	A physical place where a customer can request to fetch their purchase e.g. malls. Internet Shopping Mall defines these points.
Common Delivery Fulfilment Model	A fulfilment model where the stock provider is a retailer and the delivery agent is a common delivery agent organised by Internet Shopping Mall. Also known as Model 3.
Completed Order	An order that has been successfully completed. No items are still waiting to be fulfilled.
Connote	See: Consignment Note
Consignment Note	Identifier for a group of packages being delivered together.
Courier	Synonym to Delivery Agent.
CRM	Customer Relationship Management System.
Cross Dock	The process of moving goods from a retailer's warehouse to the central warehouse.
Cross-docked Fulfilment Model	A fulfilment model where the stock provider is the retailer and the central warehouse. In this model the retailer cross docks goods to the central warehouse and the delivery agent is a common delivery agent organised by Internet Shopping Mall. Also known as Model 2.

Customer	Synonym of Shopper
Delivery	This is the process of delivering goods to a shopper at the their nominated address.(Note the nominated address could be a collection point)
Delivery Agent	Responsible for delivering goods to the customer or to a selected pick up point.
Delivery Provider	Synonym of Delivery Agent.
Delivery Service Level	The level of expediency required by the customer for the delivery of their ordered goods. An example of the level is during the day, after hours etc
Dispatched	This is the process of the warehouse handing over goods to the delivery agent. Every dispatch should have a corresponding loaded.
EDI	Electronic Document Interchange. A messaging standard used for supply chain management. A "850" purchase order is one such message.
Financial Institution	A bank or credit union responsible for maintaining customer accounts and accepting financial transactions between them.
Financial Switching Provider	A service provider with dedicated communication links to common financial institutions and their networks. Provides automated routing of financial transactions to their intended recipients.
Front end	Synonym of Internet Shopping Mall Front End.
Fulfilment	The process of picking, packing and shipping ordered items to a shopper. Fulfilment covers the process from preparing goods to the shopper receiving the goods ie it is the combination of the provisioning process, the delivery process and the collection process.
Fulfilment Provider	Anyone on the Supply Chain - i.e., a Stock Provider or a Delivery Agent
Fulfilment Chain	The group of parties who participate in the ordering and fulfilment process, excluding the shopper.

Issuing Bank	The financial institution responsible for issuing a payment instrument to a shopper.
Item	A physical item. Has an SKU.
Loaded	This is the process of the delivery agent collecting goods from a warehouse. Every dispatch should have a corresponding loaded.
Manifest	A delivery note for a specific delivery. A manifest is a single delivery for a consignment note.(Confirm)
Merchant	Synonym of Retailer
Order	Request from a customer for the purchase and delivery of selected goods
Package	A package is a physical box of items for shipping. Has an SSCC. A package will contain one or more items.
Payment Gateway	A dedicated piece of computer hardware used to securely communicate with a financial institution or Financial Switching Provider.
Payment Instrument	Synonym of Payment Method.
Payment Method	Types of payment e.g., credit card, debit card, loyalty points, gift vouchers etc
Payment Type	Synonym of Payment Method.
PFG	Pseudo Fulfilment Gateway
Pick and Pack	Process of selecting items and packing them ready for collection and delivery
POD	Proof of delivery
POP	Proof of pickup
POS	Point of Sale system.
PPG	Pseudo Payment Gateway
Provision Request	Request to the warehouse to prepare items for delivery.
Provisioning	The process of picking and packing items for dispatching. See Provision Request.
Purchase Order	See Fulfilment Request
Refund	See Return funds.
Rejected Order	An order that is not able to be complete. A rejected

	order is not fulfilled.
Re-route transaction	The process of trying alternative routes to a Payment Gateway
Retailer	Provider of goods for sale.
Retailer Responsible Fulfilment Model	A fulfilment model where the stock provider is a retailer and the delivery agent is organised by the Retailer. Also known as Model 4.
Retailer warehouse	Warehouse managed and owned by a single retailer
Re-try transaction	The process of trying alternate Payment Gateways or Banks
Return funds	A capture funds transaction with a negative amount.
Reversal	A reversal transaction is the reversal of a capture funds transaction. This "undoes" the capture funds.
Rollback	Either a reversal or a return transaction depending on the timing of the rollback.
Settlement Provider	Settles financial transaction requests or otherwise forwards the transactions on to entities who can. (e.g.: A Financial Switching Company, A Financial Institution, An Incentive Scheme provider (e.g.: Freq. Fliers))
Shipped	See Dispatched
Shopper	User of the Internet Shopping Mall Shopping site to purchase goods.
Shopper Order	Synonym of Order.
SKU	Stock Control Unit. Individual Item Identifier for a product defined by the retailer.
SSCC	Serial Shipping Container Code. Unique identification number that identifies a package for shipping.
Stock Loss	This refers to items that are damaged or lost at the warehouse or in transit.
Stock Out	This refers to items that are temporarily not in stock at a stock provider. The items were expected to be there.
Stock Provider	A location where stock items are stored, prior to

	shipping. Examples of stock providers are central warehouse and retailer warehouse.
TFS	Transaction and Fulfilment Server
Track and Trace	Ability to monitor the status of the delivery of goods.
Web Server	Server responsible for content
Internet Shopping Mall Front End	The portion of the Internet Shopping Mall System that interacts with the shopper. This is a trusted source for TFS of orders requiring processing.

3PP	3rd Party Pr. - Central Warehouse provider.
DFE	Discount Freight Express. Courier company.
ETC	Electronic Trading Concepts
Home Runs	Courier company
SMG	Services Management Group
Buy Now or Quick Buy	A user with a purchase history may perform a 2 click order.
Cart or Shopping Cart	A collection of items for a particular user awaiting to be checked out.
Consignment Number	The identification number assigned to each delivery from the warehouse to a single delivery address, regardless of the amount of boxes delivered.
Consignment	A "box" of items grouped together from the same warehouse, going to the same delivery address
Courier	The item is in the hand of the courier service
Event Code	A unique identification number the system uses to identify an event in the Gift Registry. The Owner of the Gift Registry may allow this number to be used by Users to gain access to his/her Gift Registry
In Stock	If a SKU is available to be picked and packed and then shipped
Item(s)	A product SKU with a quantity associated
Left warehouse	Shipping status of an item in an order that has been shipped to the user's delivery address
Logged In	A registered user who has submitted an email

	address and password and has been verified by the system. A logged in user will have full access to his/her account
Order Number	The entire transaction's identification number
Out of Stock	If a SKU is unavailable because the stock level has fallen below an alert level or the SKU is completely out of stock at the warehouse
Paid	Shipping status of an item in an order that has been charged against a user's credit card
Partially Logged In	A registered user who has submitted an email address but no password. A partially logged in user will have partial access to his/her account
Pending	Shipping status of an item in an order waiting to be paid and then picked and packed
Picked and Packed	Shipping status of an item in an order that has been picked of the shelf and packed into a box
Proof of Delivery	The goods have been delivered and a signature on delivery has been received
Purchase History	A user who has made at least 1 order will have a purchase history. A purchase history contains order data, personal data, gift wrapping preferences and payment details.
Registered User	A user who has submitted personal information to gain access to special functions of the site
Retailer	An entity containing many products. Each retailer is part of a Internet Shopping Mall precinct
Session Timeout	The period of time that elapses that denotes the user is no longer active
Session	The period of time that the user is devoted to activity on the site
Shipping Option	The choice between "Express" or "Standard" delivery. Appropriate charges are adjusted
Stock Keeping Unit (SKU)	A unique identifier for a product which has specific attributes
TFS	Transaction and Fulfilment Server

Tracking Number	A unique identification number used to track multiple consignments after the payment has been fulfilled
User	A customer who is browsing the Internet Shopping Mall web site, types of users can be a registered, unregistered, logged in or partially logged in

It will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to  
5 be considered in all respects as illustrative and not restrictive.

Dated this thirtieth day of June 2000

Westfield Limited  
Patent Attorneys for the Applicant:

F B RICE & CO



**CLAIMS:**

1. A method of building a web page on a first internet site operated by a first computer system where the page is an amalgamation of elements from at least two sources including a first and second source where the elements  
5 from the first source comprise elements common to a plurality of pages on the first internet site and the second source is a second computer system operating a second independent internet site, the page being defined by template components which specify format and data items defining detail in respective page elements, the method comprising the steps of:
  - 10 a) when the page is requested by a user accessing the first internet site, obtaining a page-template component supplied from a template storage means on the first computer system, the first page-template component defining locations on the page for placement of data items from a first items database associated with the first internet site;
  - 15 b) combining the first page-template component with a second page-template component supplied from a template component storage means on the second computer system, the second page-template component defining locations on the page for placement of data items from a second items database associated with the second internet site;
  - 20 c) obtaining first data items associated with the first page-template component from the first database and inserting the first data items into the page at the locations defined by the first page-template component;
  - d) obtaining second data items associated with the second page-template component from the second database and inserting the second data  
25 items into the page at the locations defined by the second page-template component; and
  - e) providing the page to the user.
2. The method as claimed in claim 1, wherein cache means are provided in the first computer system whereby, for pages that are requested often by  
30 users, the second page-template component is temporarily stored in the cache means, the second page-template component being retrieved from the cache if it is currently held in the cache and otherwise being retrieved from the template storage means in the second computer system.
3. The method as claimed in claim 2, wherein the cache means is a pre-  
35 emptive cache whereby the pages are pre-fetched and periodically updated in anticipation of users requesting them.

4. The method as claimed in claim 2, wherein the second page-template component is temporarily stored in the cache means when the page is requested for a first time and is flushed from the cache if the page is not requested again within a period of time determined by the first computer system.

5. The method of Claim 1, 2, 3 or 4, wherein the second database is located locally to the first computer system and is a copy of a third database held remotely of the first computer system, the second database being updated intermittently to reflect data changes that have occurred on the third data base.

6. The method of Claim 1, 2, 3, 4 or 5, wherein the second page-template component comprises a page template of the second internet site.

7. The method of Claim 6, wherein the first page-template component, when combined with the second page-template component forms a border along a side of an information carrying portion of the second page-template component and the second page-template component is resized if necessary to produce a page that fits within a page dimension specification of the first internet site.

8. The method as claimed in any one of the preceding claims, wherein the first page-template component defines layout of a first page component, and content relevant to the first page-template component is defined by a first content database, which is separate from the first items database, the content of the first content database comprising at least one display element and the data items of the first items database providing details of the display elements provided from the first content database.

9. The method as claimed in any one of the preceding claims, wherein the second page-template component defines a layout of a second page component, and content relevant to the second page component is defined by a second content database separate from the second items database, the content of the second content database comprising at least one display element and the data items of the second database providing details of the display elements provided from the second content database.

10. The method as claimed in any one of claims 1 to 7, wherein each of the page-template components define layout and content of a respective component of a page, the content comprising at least one display element and the data items of the first and second databases provide details of the

display elements for the first and second page-template components respectively.

11. The method as claimed in any one of claims 1 to 7, wherein each of the page-template components define only layout of a respective component of a page and the first and second items databases provide content items for each  
5 respective page component and data items for each respective content item.

12. A method of building a web page on an internet site where the page is an amalgamation of page defining elements including at least two template elements defining page format of respective page components of the web  
10 page and data items defining detail in respective page elements, the method comprising the steps of:

a) when the page is requested by a user accessing the internet site, obtaining a page-template component supplied from a template storage means, the first page-template component defining locations on the page for  
15 placement of data items from a first items database associated with the internet site;

b) combining the first page-template component with a second page-template component supplied from a template component storage means, the second page-template component defining locations on the page for  
20 placement of data items from a second items database associated with an information provider other than the internet site;

c) obtaining first data items associated with the first page-template component from the first database and inserting the first data items into the page at the locations defined by the first page-template component;

25 d) obtaining second data items associated with the second page-template component from the second database and inserting the second data items into the page at the locations defined by the second page-template component; and

e) providing the page to the user.

30 13. The method as claimed in claim 12, wherein cache means are provided at the internet site whereby, for pages that are requested often by users, the second page-template component is temporarily stored in the cache means, the second page-template component being retrieved from the cache if it is currently held in the cache and otherwise being retrieved from the template  
35 storage means in the second computer system.

14. The method as claimed in claim 13, wherein the cache means is a pre-emptive cache whereby the page templates are pre-fetched and periodically updated in anticipation of users requesting them.

5 15. The method as claimed in claim 13, wherein the second page-template component is temporarily stored in the cache means when the page is requested for a first time and is flushed from the cache if the page is not requested again within a period of time determined by the first computer system.

10 16. The method of Claim 12, 13, 14, or 15, wherein the second database is located locally to the first computer system and is a copy of a third database held remotely of the first computer system, the second database being updated intermittently to reflect data changes that have occurred on the third data base.

15 17. The method of claim 12, 13, 14, 15 or 16, wherein the first page-template component, when combined with the second page-template component forms a border along a side of an information carrying portion of the second page-template component and the second page-template component is resized if necessary to produce a page that fits within a page dimension specification of the first internet site.

20 18. The method of claim 17, wherein the first page-template component defines layout of a first page component, and content relevant to the first page-template component is defined by a first content database, which is separate from the first items database, the content of the first content database which is separate from the first items database, comprising at least  
25 one display element and the data items of the first items database providing details of the display elements provided from the first content database.

19. The method as claimed in any one of claims 12 to 18, wherein the second page-template component defines a layout of a second page component, and content relevant to the second page component is defined by  
30 a second content database separate from the second items database, the content of the second content database comprising at least one display element and the data items of the second database providing details of the display elements provided from the second content database.

35 20. The method as claimed in any one of claims 12 to 19, wherein each of the page-template components define layout and content of a respective component of a page, the content comprising at least one display element

and the data items of the first and second databases provide details of the display elements for the first and second page-template components respectively.

21. The method as claimed in any one of claims 12 to 20, wherein each of  
5 the page-template components define only layout of a respective component of a page and the first and second items databases provide content items for each respective page component and data items for each respective content item. 22. A telecommunication signal representing an internet web page  
10 image generated by a web site and comprising an amalgamation of at least two page components, the amalgamated page image being produced by the web site from a first page-template component and a second page-template component, the page-template components each defining locations on the page for placement of data items from respective databases associated with each template component.

15 23. The signal of claim 22, wherein:

a) the first page-template component is supplied from a template storage means, the first page-template component defining locations on the page for placement of data items from a first items database;

20 b) the second page-template component is supplied from a template component storage means, the second page-template component defining locations on the page for placement of data items from a second items database;

c) the first data items associated with the first page-template component are obtained from the first database and one inserted into the  
25 page at the locations defined by the first page-template component;

d) the second data items associated with the second page-template component are obtained from the second database and are inserted into the page at the locations defined by the second page-template component.

24. The signal as claimed in claim 22, or 23 wherein cache means are  
30 provided at the web site whereby, for pages that are requested often by users, the second page-template component is temporarily stored in the cache means, the second page-template component being retrieved from the cache if it is currently held in the cache and otherwise being retrieved from the template storage means in the second computer system.

25. The signal as claimed in claim 24, wherein the cache means is a pre-emptive cache whereby the page templates are pre-fetched and periodically updated in anticipation of users requesting them.

26. The signal as claimed in claim 24, wherein the second page-template component is temporarily stored in the cache means when the page is requested for a first time and is flushed from the cache if the page is not requested again within a period of time determined by the first computer system.

27. The signal as claimed in claim 23, 24, 25 or 26, wherein the first page-template component is held locally to the web site and the second page-template component is held on a computer system remote from the web site.

28. The signal remote computer system as claimed in claim 23, 24, 25, 26, or 27, wherein the second database is located locally to the first computer system and is a copy of a third database held remotely of the first computer system, the second database being updated intermittently to reflect data changes that have occurred on the third data base.

29. The signal as claimed in any one of claims 23 to 28, wherein the second page-template component comprises a page template of a second internet site.

30. The signal as claimed in any one of claims 23 to 29, wherein the first page-template component, when combined with the second page-template component forms a border along a side of an information carrying portion of the second page-template component and the second page-template component is resized if necessary to produce a page that fits within a page dimension specification of the first web site.

31. The signal as claimed in any one of claims 23 to 30, wherein the first page-template component defines layout of a first page component, and content relevant to the first page-template component is defined by a first content database, which is separate from the first items database, the content of the first content database comprising at least one display element and the data items of the first items database providing details of the display elements provided from the first content database.

32. The signal as claimed in any one of claims 23 to 31, wherein the second page-template component defines a layout of a second page component, and content relevant to the second page component is defined by a second content database separate from the second items database, the

content of the second content database comprising at least one display element and the data items of the second database providing details of the display elements provided from the second content database.

- 5 33. The signal as claimed in any one of claims 23 to 32, wherein each of the page-template components define layout and content of a respective component of a page, the content comprising at least one display element and the data items of the first and second databases provide details of the display elements for the first and second page-template components respectively.

10

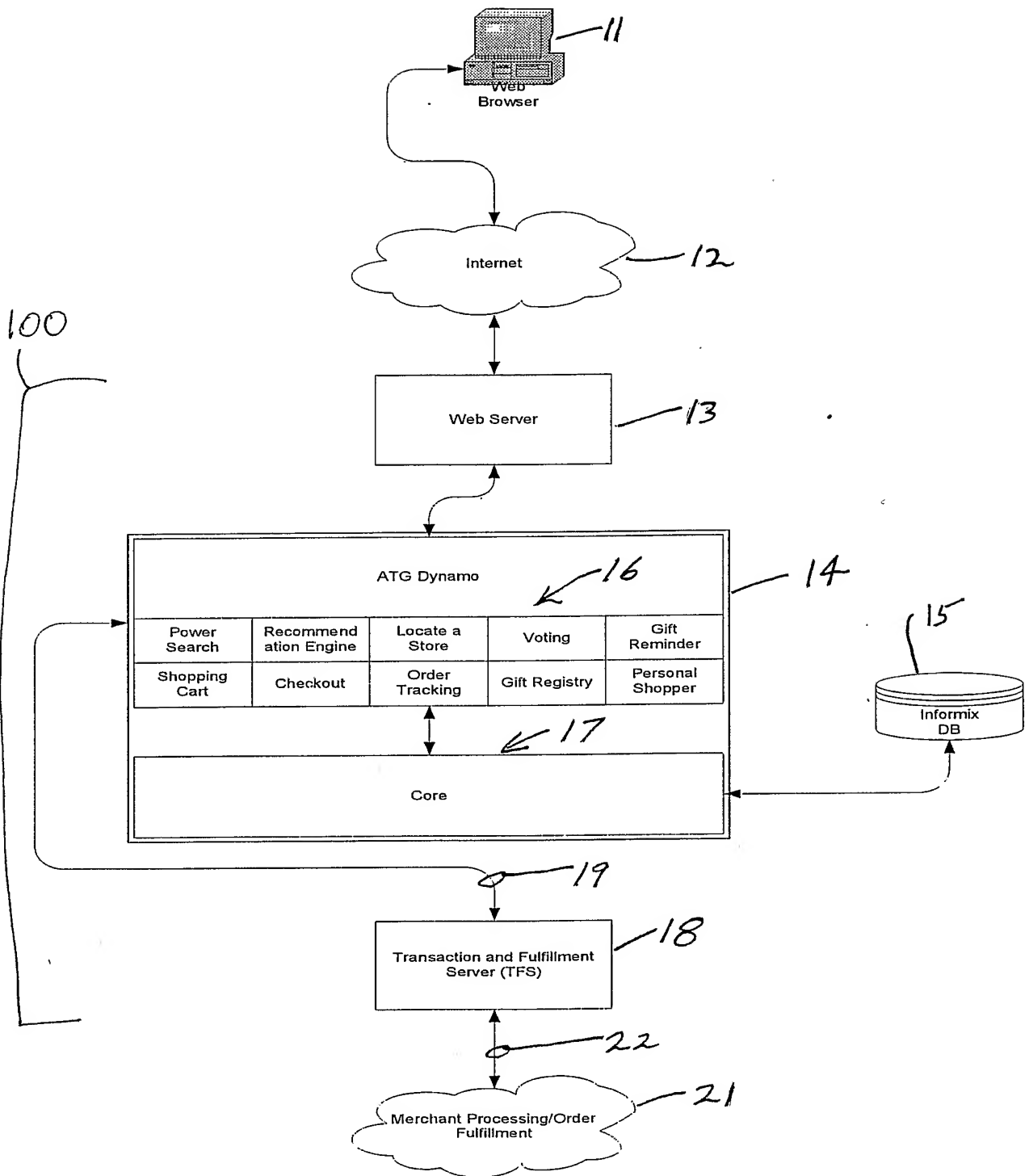


FIGURE 1



31



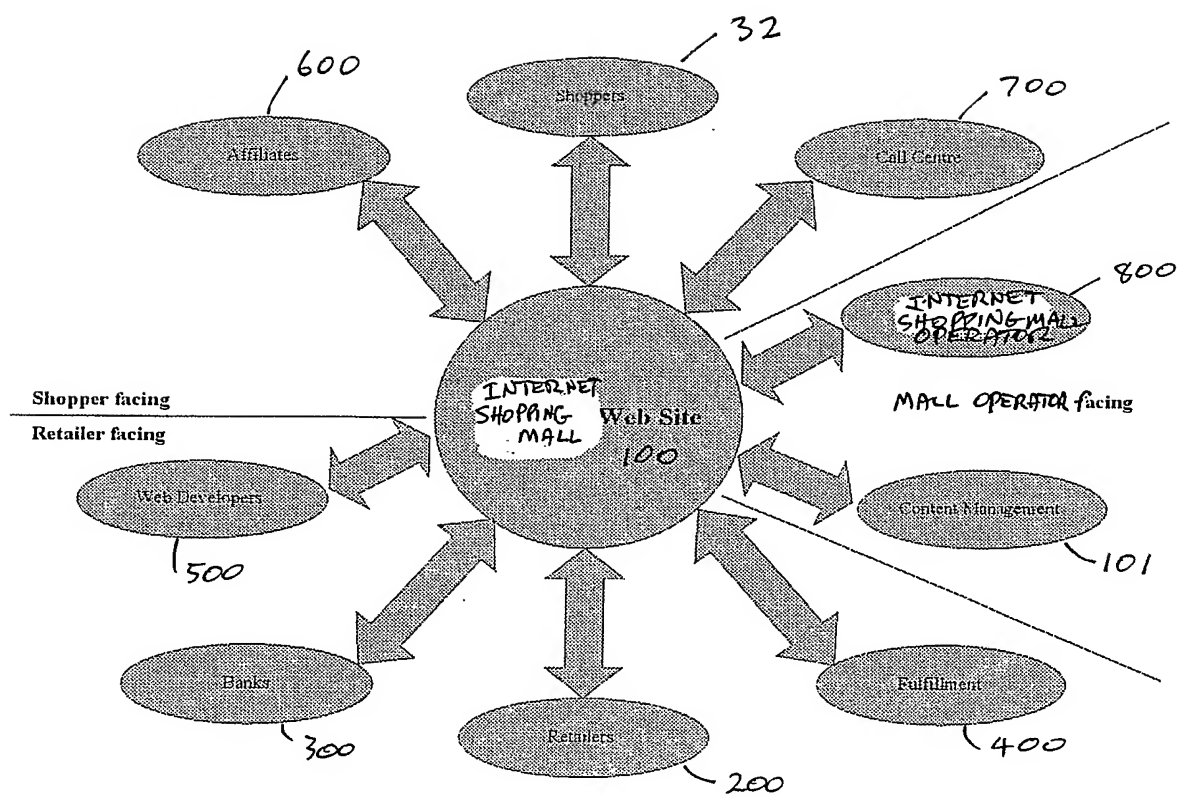
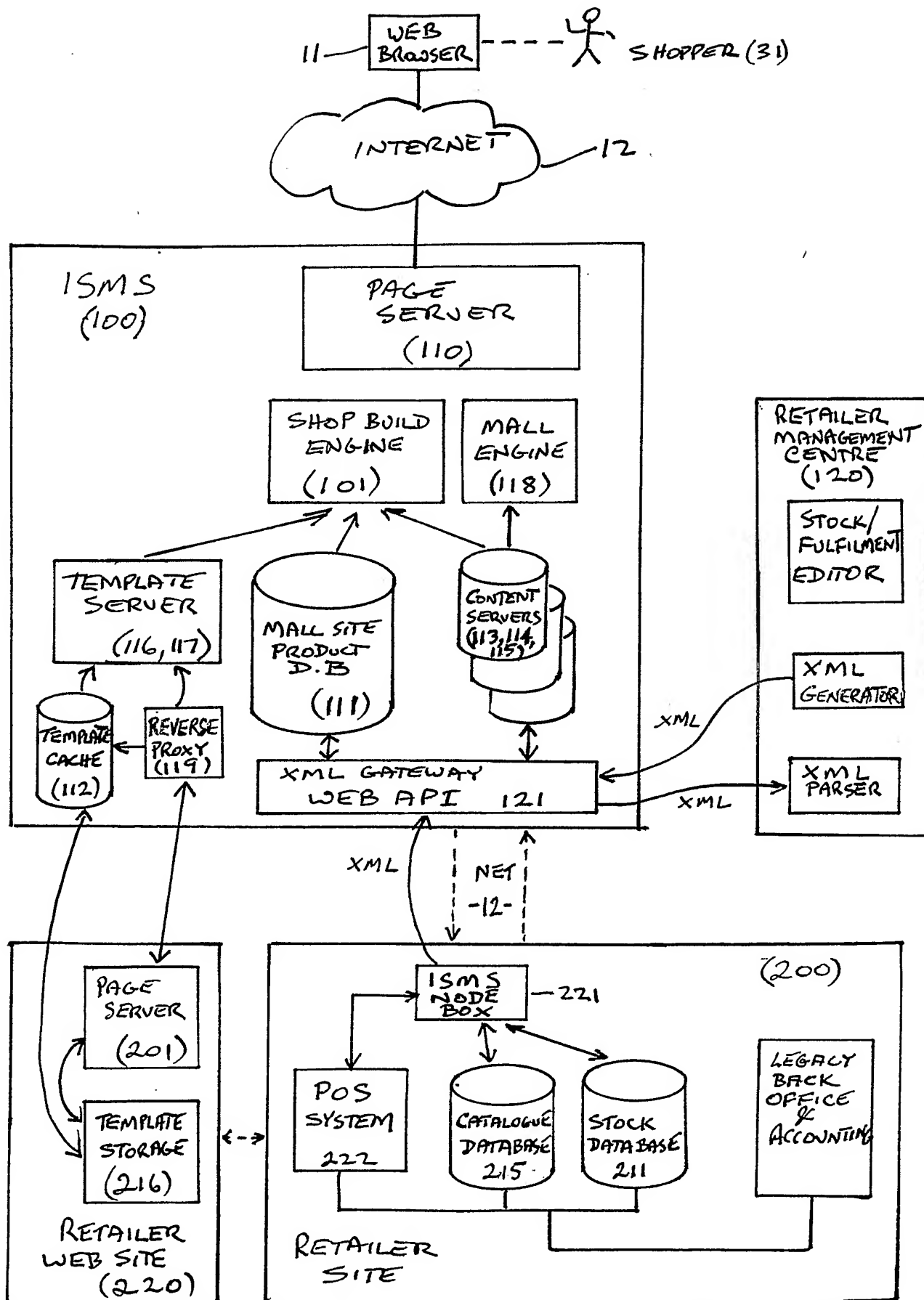


FIGURE 3



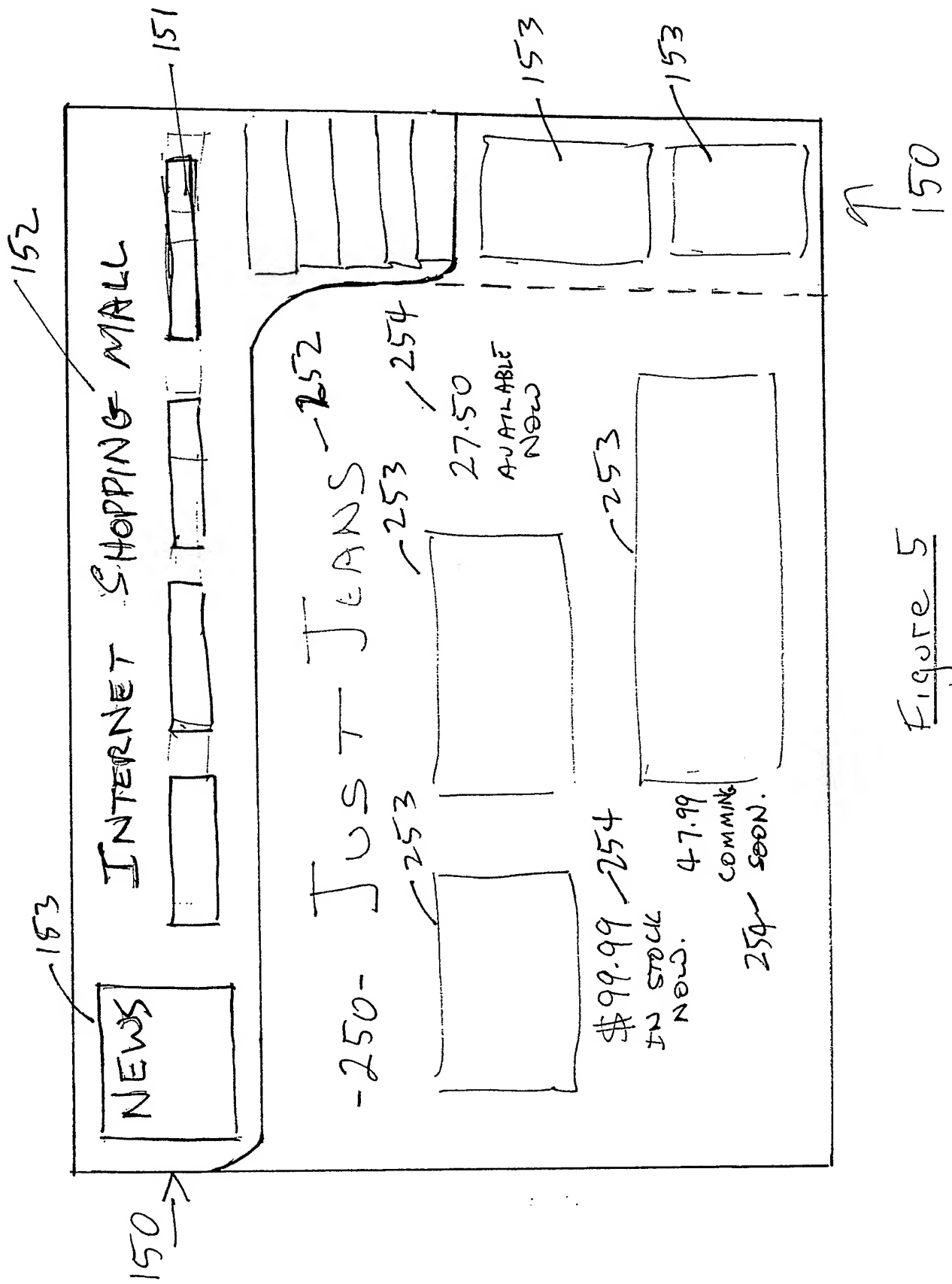


Figure 5